

REVIEW

DOI: 10.19127/mbsjohs.1558264

## Monkeypox and Nursing: Prevention, Management, and Care Strategies

Necati Bukecik<sup>1</sup>([ID](#)),

<sup>1</sup>Bolu Abant İzzet Baysal University Faculty of Medicine, Bolu, Türkiye

Received: 30 September 2024, Accepted: 28 November 2024, Published online: 28 February 2025  
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### Abstract

This study examines the clinical features of Monkeypox, its prevalence in outbreaks, and the critical roles of nurses in the prevention and management of this disease. Strategies for minimizing the effects of the disease on health systems and society are discussed by addressing the multifaceted tasks of nurses such as infection control, patient care, education and counseling.

This study is a comprehensive review. Current academic sources and reports were examined using the literature review method. In line with the data obtained from these sources, the symptoms, transmission routes, complications, and nursing practices of Monkeypox have been evaluated. The study aims to synthesize existing knowledge and analyze current approaches to nursing care and infection control measures.

Monkeypox is a zoonotic disease that can lead to serious complications, especially in individuals with weakened immune systems. In the management of the disease, nurses play a critical role in preventing the spread of the epidemic with tasks such as infection control, psychosocial support, and community information, as well as patient care. Nursing practices such as symptomatic treatment, use of appropriate personal protective equipment, isolation and education support the recovery process of patients and protect public health.

The role of nurses in the prevention and management of Monkeypox is vital for controlling the outbreak. Strategies for training and supporting nurses will make a major contribution to future epidemic preparedness and the development of existing measures. This study highlights the challenges nurses face in epidemic management and the support mechanisms needed to cope with these challenges

**Keyword:** Monkeypox, nursing care, prevention, management, infection control

**Suggested Citation:** Bukecik N. Monkeypox and Nursing: Prevention, Management, and Care Strategies. Mid Blac Sea Journal of Health Sci, 2025;11(1):70-82.

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**E-mail:** necati\_bukecik14@hotmail.com

**Address for correspondence/reprints:**

Necati Bukecik

**Telephone number:** +90 (374) 253 46 56

## A. INTRODUCTION

### 1. What is Monkeypox?

#### *Description and Origin*

Monkeypox disease is a zoonotic infection caused by the Monkeypox virus in the genus Orthopoxvirus, which belongs to the Poxviridae family. This virus, which was first detected in monkeys in 1958, was first described in humans in 1970 in the Democratic Republic of the Congo (1). Although the virus has genetic similarities to the smallpox virus, it is usually milder and has a lower mortality rate. In recent years, monkeypox has been among the global health threats, with case reports also increasing, especially in regions outside of Africa (2).

#### *Clinical Manifestations*

The clinical manifestations of the disease are characterized by fever, headache, muscle aches, back pain, lymphadenopathy and rash on the body. The rash can spread to the whole body, usually starting on the face, hands and feet. The severity of symptoms can vary depending on the length of contact with the virus and the individual immune response (3).

### 2. Epidemiology of the Disease and Modes of Transmission

#### **Epidemiology**

: Monkeypox was first reported in Central and West Africa. However, in recent years, with the increase in global travel and trade, there has

been a significant increase in the international spread of the disease. The worldwide pandemic in 2022 increased the pressure of the disease on international health systems and was among the global health threats (4).

#### *Modes of Transmission*

The Monkeypox virus can be passed to humans through direct contact with the bodily fluids, blood, or meat of infected animals. It can also be transmitted through respiratory secretions, skin rashes, or contaminated surfaces and items of infected people. These routes of transmission are important factors that facilitate the spread of the virus within the community (5).

### 3. Importance and Need of Nursing Care

#### *Importance: Nurses*

play a critical role in the management of Monkeypox. These roles cover areas such as controlling the spread of infection, symptom management, providing patient education, and coordinating care processes. Nurses increase the effectiveness of treatment processes by providing both physical and psychosocial support during the treatment process of patients (6).

#### *Need*

The importance of nursing care is increasing due to the contagiousness of the disease and the difficulties in the treatment process. Nurses need to have sufficient knowledge and skills in infection control, monitoring of patients and

implementation of treatment protocols. They also play a critical role in raising public awareness and educating (7).

#### 4. Purpose and Importance of the Article

##### *Objective*

The aim of this article is to present a comprehensive analysis of Monkeypox from a nursing perspective. The main goal of this study is to evaluate the effects of nursing practices on infection prevention, management and patient care and to make suggestions on existing strategies.

##### **Importance**

The fact that Monkeypox is among the global health threats increases the importance of nursing care in terms of effective management of this disease. The article aims to provide a resource for developing nursing practices and strategies, overcoming challenges in disease management, and identifying best practices in patient care.

#### **B. Monkeypox Disease: Clinical Symptoms and Diagnostic Process**

##### **1. Clinical Symptoms and Course of Disease**

Monkeypox is clinically manifested by fever, headache, muscle aches, back pain, lymphadenopathy and rashes on the body. The course of the disease usually consists of the following stages:

**Initial Stage:** The disease usually begins with fever, headache, muscle aches and weakness.

These early symptoms can create a flu-like picture and usually occur in the initial stage of the disease.

**Rash Stage:** Within a few days of the appearance of fever, rashes develop on the body. The rash first starts on the face, hands, and feet, and spreads to other parts of the body over time. The rashes develop from papules to vesicles and eventually to crusts.

**Complications:** Some patients may develop serious complications with rashes, including lumping, infected sores, and secondary bacterial infections. Usually, the disease resolves on its own, but individuals with weakened immune systems have a higher risk of complications (3).

##### **2. Diagnostic Methods and Laboratory Tests**

The diagnosis of Monkeypox is based on laboratory tests along with clinical manifestations:

**Clinical Evaluation:** The first step is usually an assessment of the patient's clinical symptoms and history. This means gathering information about the history of contact with the virus and the timing of symptoms.

**Laboratory Tests:** Various laboratory tests are used to confirm the diagnosis:

**Polymerase Chain Reaction (PCR):** It is used to detect virus DNA in samples taken from infected tissues or fluids and is the most reliable

method in making a definitive diagnosis of the disease.

**Serological Tests:** These are tests that detect antibodies against the virus in the blood of patients. These tests are used to assess the immune response to the virus in individuals who have had a past infection.

**Viral Cultures:** Amplification of the virus in vitro can be used to confirm the diagnosis, but this method is less common and can take time (5).

### 3. The Role of Nurses: Early Diagnosis and Follow-up

Nurses play a critical role in the management of Monkeypox, and this role is of great importance in early diagnosis and follow-up processes:

**Early Diagnosis:** Nurses carefully monitor patients' signs and evaluate clinical symptoms. Early diagnosis ensures that the disease is controlled and transmission is prevented. Nurses play an important role in reporting symptoms and ensuring that tests are carried out in a timely manner.

**Track & Trace:** Nurses regularly monitor patients' recovery progress and assess their response to treatment. It also follows the worsening of symptoms or the appearance of new signs. This process is critical to assessing

the effectiveness of treatment protocols and making necessary changes.

**Education and Support:** Nurses provide training on infection management and care for patients and family members. It also provides patients with information and psychosocial support to prevent the spread of infection (6).

### C. Prevention Strategies in Nursing

#### 1. Infection Control Measures

Infection control measures are critical to limit the spread of Monkeypox and reduce the risk of infection in healthcare. These measures include the following elements:

- **Patient Isolation:** Infected patients should be isolated to prevent the spread of infection to other patients and healthcare workers. Isolation practices ensure that patient rooms are segregated and infected people are separated from other patients (8).
- **Hand Hygiene:** Hand hygiene is an essential way to prevent the spread of infection. Healthcare workers are required to wash their hands or use hand sanitizer before and after patient care (5).
- **Cleaning and Disinfection:** Regular cleaning and disinfection of patient rooms and healthcare equipment reduces the risk of infection. Surfaces and equipment should be

cleaned with appropriate disinfectants to eliminate infectious agents (7).

## 2. Use of Personal Protective Equipment

Personal protective equipment (PPE) ensures that nurses and healthcare workers are protected against Monkeypox. The use of PPE includes the following elements:

- **Mask and Protective Glasses:** Masks and protective glasses are used to prevent the spread of respiratory viruses. This equipment helps nurses protect themselves from respiratory infections (5).
- **Gloves and Gowns:** Sterile gloves and protective gowns are used during direct contact with infected patients. This reduces the risk of infection and ensures the safety of nurses (3).
- **Proper Use and Disposal of PPE:** Nurses should properly clean and dispose of equipment before and after use to minimize the risk of infection transmission (9,10). This includes thorough cleaning of reusable equipment, such as stethoscopes and thermometers, using appropriate disinfectants to prevent cross-contamination and adherence to institutional protocols for sterilization. For single-use items, including gloves, syringes, and disposable gowns, proper disposal involves placing them in designated biohazard bags or sharps containers as specified in infection control guidelines. These practices are essential for

ensuring patient and staff safety within healthcare settings (9,10).

## 3. Education and Information: Patient, Family and Society

Education and information are an important part of preventing the spread of infection in nursing practice. These processes include:

- **Patient Education:** Infected individuals should be informed about the symptoms of the disease, treatment methods and personal hygiene. This education helps patients better manage the disease and prevent the spread of infection (8).
- **Family Education:** Family members should be informed about infection control measures and what to look for in patient care. This enables family members to contribute effectively to the nursing care process (6).
- **Community Awareness:** Awareness-raising campaigns should be organized for society, information should be given about the symptoms of the infection, transmission routes and prevention methods. Raising awareness throughout the community is an important step in reducing the spread of infection (7).

## 4. The Role of Vaccination and the Duties of Nurses in Vaccine Management

Vaccination plays an important role in controlling Monkeypox. Nurses' duties in vaccine management include:

- **Vaccine Administering:** Nurses ensure that vaccines are administered correctly. Vaccinations on schedule prevent the spread of infection and increase herd immunity (4).
- **Vaccine Management and Monitoring:** Nurses monitor the effectiveness and safety of vaccination. They are responsible for the evaluation of post-vaccination side effects and the implementation of vaccination protocols (5).
- **Community Vaccination Programs:** Nurses organize community vaccination programs and inform the community about the benefits of vaccination. They also play an important role in the planning and execution of vaccination campaigns (6).

#### **D. Management of Monkeypox: Nursing Practices**

##### **1. Symptom Management and Medication**

Symptom management is a cornerstone of Monkeypox treatment. Nurses employ specific, actionable approaches to enhance patient comfort and manage symptoms effectively:

- **Fever and Pain Management:** Nurses administer prescribed pain medications such as paracetamol or ibuprofen to manage pain and fever. Additionally, they may use cooling blankets or apply cold compresses to reduce body temperature. For hydration, nurses provide oral rehydration solutions or

intravenous fluids for patients unable to drink adequately (8).

- **Rash and Skin Problems:** Nurses cleanse affected skin areas gently with saline solutions to reduce irritation. For moist lesions, they apply non-stick dressings to prevent further discomfort. Topical antihistamines or prescribed antiviral creams are used as per the treatment protocol (4).
- **Medication Administration:** Nurses ensure adherence to medication schedules by documenting each dose in patient charts and using reminders. They educate patients about the importance of completing prescribed medication regimens to avoid complications (6).

##### **2. Patient Isolation and Infection Control**

Preventing the spread of Monkeypox is essential, and nurses are instrumental in implementing isolation and infection control practices:

- **Patient Isolation:** Nurses supervise the setup of isolation rooms, ensuring features such as negative-pressure ventilation and minimal contact zones are in place. For example, they coordinate visitor restrictions and educate staff about isolation protocols (5).
- **Infection Control:** Proper donning and doffing of personal protective equipment (PPE) is demonstrated and monitored by nurses. They perform routine cleaning and disinfection of high-touch surfaces such as bed rails and

doorknobs, ensuring adherence to hospital protocols (7).

### 3. Pain and Discomfort Management

Managing pain and discomfort is a priority to improve the quality of life for Monkeypox patients:

- **Pain Management:** Nurses use validated pain assessment tools like the Numeric Rating Scale (NRS) to evaluate pain levels. For instance, if a patient reports pain exceeding a certain threshold, nurses promptly administer analgesics or suggest repositioning to alleviate discomfort (8).

- **Discomfort Management:** Nurses provide skin care by applying moisturizers or emollients to prevent dryness and cracking. Relaxation techniques, such as guided breathing exercises, may also be recommended to help patients cope with general discomfort (4).

### 4. Psychosocial Support and Nursing Approaches

Psychosocial well-being is a vital aspect of Monkeypox care, and nurses actively address patients' emotional and social needs:

- **Psychological Support:** Nurses perform initial screenings for anxiety or depression using standardized tools. Based on the results, they offer counseling sessions or facilitate access to professional mental health services.

For instance, they might guide patients through relaxation techniques to manage stress (6).

- **Family Support Programs:** Educational workshops are organized by nurses for family members to understand the disease and care requirements. Practical demonstrations, such as proper hand hygiene and dressing changes, empower families to support the patient effectively (8).

### 5. Nutrition and Hydration Support

Optimal nutrition and hydration are essential for recovery, and nurses play a key role in this process:

- **Nutritional Support:** Nurses collaborate with dietitians to create meal plans that meet patients' specific needs, such as protein-rich diets for wound healing. They monitor food intake and encourage the consumption of easily digestible, nutrient-dense foods, particularly for patients with reduced appetites (7).

- **Hydration Support:** To prevent dehydration, nurses track fluid intake using a fluid balance chart. For patients with severe dehydration, they administer IV fluids and educate patients about the importance of electrolyte-rich beverages (4).

### E. Care Strategies: Hospital and Home Care Processes

#### 1. Nursing Care in a Hospital Setting

Nursing care in a hospital setting is essential for the effective treatment and recovery of



Monkeypox patients. Each aspect of nursing care is detailed with specific applications:

- ***Patient Monitoring and Care:*** Nurses monitor patients' vital signs at regular intervals, using tools such as blood pressure monitors, thermometers, and pulse oximeters. They document these observations in patient records and adjust interventions based on clinical changes. For example, if fever spikes, antipyretics are administered promptly, and hydration protocols are implemented (5).
- ***Infection Control:*** Infection control measures include sterilizing surfaces in patient rooms with hospital-grade disinfectants, enforcing strict hand hygiene practices through frequent washing or alcohol-based sanitizers, and ensuring the proper donning and doffing of personal protective equipment (7). Training on infection protocols is periodically provided to all healthcare staff.
- ***Pain and Symptom Management:*** Pain scales such as the Visual Analog Scale (VAS) or the Numeric Rating Scale (NRS) are used for assessing pain levels. Based on the findings, nurses administer analgesics or non-pharmacological interventions such as positioning or cold compresses to alleviate discomfort (8).
- ***Psychosocial Support:*** Nurses conduct daily check-ins to address patients' emotional well-being. They might use guided relaxation

techniques or refer patients to counseling services if anxiety or depression is detected (6).

## 2. Home Care and Nursing Services

Home care ensures the continuity of treatment for patients transitioning from hospital to home settings. Specific nursing practices include:

- ***Organization of Home Care:*** Nurses provide detailed home care plans, including instructions for medication schedules, wound care procedures, and dietary recommendations. For instance, they may design a daily routine for applying topical treatments to Monkeypox lesions (3).
  - ***Pain and Symptom Management:*** Nurses educate patients and caregivers on recognizing pain and symptom escalation. For example, they may instruct on using over-the-counter pain relief medications and maintaining a log of symptoms to report during follow-up visits (4).
  - ***Family Education and Support:*** Training sessions include hands-on demonstrations, such as how to change bed linens while minimizing discomfort to the patient or how to properly use medical equipment like nebulizers. Emergency protocols, such as recognizing signs of secondary infections, are also covered (8).
- ### 3. Creating a Care Plan and Patient Monitoring
- Effective patient care involves meticulous planning and regular monitoring, tailored to individual patient needs:



- **Creating a Care Plan:** Nurses conduct initial assessments, documenting patients' physical, emotional, and social needs. These assessments inform the creation of individualized care plans, including specific goals such as "reduce fever within 48 hours" or "achieve pain level below 3 on NRS within a week" (7).

- **Patient Monitoring and Assessment:** Nurses use mobile health technologies or telemedicine platforms to monitor patients remotely, ensuring adherence to treatment protocols. They provide feedback during routine home visits or teleconsultations, adjusting care plans based on progress (6).

#### 4. Multidisciplinary Approach and the Role of Nurses in the Team

A multidisciplinary approach enhances the quality of care provided, and nurses play a pivotal role in this setup:

- **Teamwork:** Nurses actively participate in case discussions during multidisciplinary team meetings. For example, they share insights on a patient's response to pain management strategies, guiding decisions on modifying dosages or adding complementary therapies (4).

- **Coordination and Communication:** Nurses act as liaisons, scheduling consultations with dietitians for nutritional support or psychologists for mental health care. They also

provide detailed patient reports to ensure seamless communication within the team (3).

- **Patient-Centered Approach:** By conducting surveys or interviews, nurses identify patients' specific concerns or goals, such as minimizing scarring or managing anxiety about recovery. They then work with the team to integrate these priorities into the treatment plan, fostering a personalized care experience (8).

#### F. Education and Patient Education: Awareness Raising and Behavior Change

##### 1. Patient and Family Education

Patient and family education plays a critical role in managing Monkeypox and reducing the risk of transmission:

**Disease Information and Symptoms:** Nurses inform patients and their families about the definition, symptoms, and treatment processes of Monkeypox. Education ensures that patients are able to identify symptoms and seek medical attention at appropriate times (8).

**Treatment and Care:** Nurses provide detailed information about the treatment process and care requirements. This includes how to use medications, how to manage symptoms, and access to healthcare (6).

**Infection Precautions:** Patients and families are trained on the necessary precautions to prevent the spread of infection. These measures

include personal hygiene, isolation rules, and how to manage contact with the patient (7).

## 2. Trainings to Protect Public Health

Trainings to protect public health are important to reduce the spread of Monkeypox and to raise public awareness:

**Awareness Campaigns:** Nurses organize campaigns to raise awareness about Monkeypox disease in the community. These campaigns provide information on the symptoms of the disease, routes of transmission, and prevention methods (3).

**Training Programs:** Nurses provide training programs at school, workplace, and community centers, allowing the public to learn about infection risks and prevention strategies. These trainings can be in the form of health education materials, seminars, and workshops (4).

**Crisis Response Training:** Preparatory trainings are organized to inform and guide the society in crisis situations. These trainings include emergency management and response strategies to public health crises (5).

## 3. Educator Role of Nurses

Nurses occupy an important position in the role of educator and use a variety of strategies to fulfill this role effectively:

**Knowledge and Skill Transfer:** Nurses teach health knowledge and care skills to patients, families, and community members. As educators, nurses increase health literacy by

presenting information in an understandable and applicable way (7).

**Behavior Change:** Nurses help individuals change their health behaviors. This includes motivational strategies for promoting health habits, reducing risky behaviors, and adopting healthy lifestyles (6).

**Development of Educational Materials:** Nurses develop effective educational materials and resources. These materials can be used to facilitate patients' and society's access to information (8).

## G. Nursing Challenges and Ethical Issues

### 1. Challenges Faced by Nurses

Nurses face several challenges when dealing with epidemics such as Monkeypox:

- **Workload and Stress:** Nurses may experience excessive workload and stress due to the high number of patients and intense working conditions. This can negatively affect nurses' job performance and overall quality of life. High workload can threaten both the physical and psychological health of nurses (6).
- **Psychological Effects:** Epidemics can put psychological pressure on nurses. Long working hours, heavy patient load, and constant contact with infected patients can increase the risk of burnout and post-traumatic stress

disorder (PTSD). It is common for nurses to need emotional and psychological support (7).

- **Risk of Infection:** Nurses are at high risk of infection because they are in constant contact with infected patients. This situation necessitates taking additional precautions to protect their personal health and can lead to anxiety and anxiety among nurses (8).

## 2. Ethical Issues

Ethical issues in nursing practice can affect patients' rights and quality of care:

- **Patient Privacy:** Patient information related to infectious diseases such as Monkeypox is sensitive data that needs to be kept confidential. Nurses should be vigilant to ensure the confidentiality of patient information. Violations of confidentiality can jeopardize both patients' rights and the credibility of nursing practices (5).

- **Isolation and Stigmatization:** Isolation of infected patients is a sensitive issue from both a health and ethical point of view. Isolation of patients can increase the risk of stigmatization and social exclusion in society. Nurses should take an ethical approach, taking into account patients' emotional needs and social support needs (4).

- **Distribution of Resources:** It can be difficult to distribute limited resources (e.g., personal protective equipment, treatment methods) fairly and equitably during the pandemic. Nurses may have to make ethical decisions about the fair

distribution of resources. This requires the equitable delivery of health services and ensuring social equality (3).

## H. CONCLUSION

### Main Findings and Recommendations for Nursing Practice

The main findings and recommendations regarding Monkeypox disease and nursing practices discussed in this article are as follows:

1. **Disease Management:** Comprehensive knowledge of the clinical manifestations of Monkeypox, treatment methods, and infection control measures enables nurses to play an effective role in caring for patients. It is critical for nurses to be knowledgeable about symptom management, patient isolation, pain management, and psychosocial support (8).

2. **Education and Awareness-Raising:** Nurses should provide effective training programs for patients and their families and organize awareness campaigns in the community. This requires nurses to take on the role of both educator and counselor. Education provides information about the symptoms of the disease, infection precautions, and the treatment process, while raising public awareness can also reduce the spread of infection (4).

3. **Infection Control:** Nurses should meticulously follow infection control measures such as the use of personal protective equipment, patient isolation and hygiene practices. These practices ensure the protection

of both patients and healthcare professionals (7).

**4. Psychosocial Support and Coping with Challenges:** Nurses should develop support systems and strategies to cope with the workload, stress and psychological effects they face in the epidemic situation. Psychosocial support can help nurses cope with burnout and stress (6).

**5. Ethical Issues:** To deal with ethical issues such as patient confidentiality, isolation, and stigmatization, nurses must act in accordance with ethical rules and professional standards. Ethical decisions contribute to protecting patients' rights and equitable healthcare delivery (5).

## I. Recommendations for Future Research and Clinical Applications

**1. Research Need:** More research needs to be done on the long-term effects of Monkeypox, new treatment methods, and vaccine development. Future studies will help expand evidence-based knowledge for nursing practice and disease management (11).

**2. Clinical Practices:** Nursing practices need to be constantly updated and improved. Standards of nursing education and practice should be reviewed to increase effectiveness in disease management and improve the quality of health care (8).

**3. Community and Health Education Programs:** The scope of public health

education programs should be expanded and nurses should be enabled to fulfill their educational roles more effectively. This can help prevent the spread of infections and protect community health (4).

**4. Policies and Support Systems:** It is important to develop policies and support systems to support nurses in coping with the challenges they face. More resources and support should be provided on psychosocial support and workload management (6).

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**Peer-review:** Externally peer-reviewed

**Author Contributions:** Concept: NB, Design: NB, Data Collection and Processing: NB, Writing: NB.

**Conflict of Interest:** The author declared no conflict of interest.

**Financial Disclosure:** The author declared that this study has not received no financial support.

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